

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) Carbon nanotubes, which are directly grown over a carbon substrate, whose internal and external walls are uniformly doped with nano-sized metallic catalyst particles to a degree of $0.3\text{-}5\text{ mg/cm}^2$, wherein the carbon nanotubes are branched carbon nanotubes.

2. (Original) The carbon nanotubes of claim 1, wherein the metallic catalyst particles are derived from at least one selected from the group consisting of Pt, Ru, Fe, Co, and alloys or mixtures of the forgoing elements.

3. (Original) The carbon nanotubes of claim 1, wherein the carbon substrate is carbon cloth or carbon paper.

4. (Previously Presented) The carbon nanotubes of claim 1, wherein the catalyst is selected to act as both a catalyst for carbon nanotube growth and as a fuel cell catalyst.

Claims 5-12 (Cancelled)

13. (Previously Presented) A fuel cell using the carbon nanotubes grown over the carbon substrate according to claim 1 for an electrode.

14. (Previously Presented) A fuel cell using the carbon nanotubes grown over the carbon substrate according to claim 2 for an electrode.

15. (Previously Presented) A fuel cell using the carbon nanotubes grown over the carbon substrate according to claim 3 for an electrode.

16. (Previously Presented) A fuel cell using the carbon nanotubes grown over the carbon substrate according to claim 4 for an electrode.

17. (Withdrawn-Previously Presented) An electrode for a fuel cell comprising:
a carbon substrate;
the branched carbon nanotubes of claim 1 on the carbon substrate;
and
metallic catalyst particles dispersed within the branched carbon nanotubes.

18. (Withdrawn) The electrode of claim 17, wherein the metallic catalyst particles have a diameter of a few nanometers or less.

19. (Withdrawn) The electrode of claim 17, wherein the metallic catalyst particles comprise Pt and/or Ru catalyst particles.

20. (Withdrawn) The electrode of claim 17, wherein the metallic catalyst particles have a dispersion in the range of 0.3-5 mg/cm² on internal and external walls of the branched carbon nanotubes.

21. (Withdrawn) A fuel cell using at least one electrode in accordance with claim 17.

22. (Withdrawn) A fuel cell using at least one electrode in accordance with claim 20.

23. (Withdrawn-Previously Presented) An electrode for a fuel cell comprising:
a carbon substrate;
the branched carbon nanotubes of claim 1 on the carbon substrate;
and
nano-sized metallic catalyst in and/or on the branched carbon nanotubes.

24. (Withdrawn) The electrode of claim 23, wherein the carbon substrate, the branched carbon nanotubes, and the nano-sized metallic catalyst are used for an electrode in the fuel cell.

25. (Withdrawn) The electrode of claim 23, wherein the metallic catalyst particles have a diameter of a few nanometers or less.

26. (Withdrawn) The electrode of claim 23, wherein the metallic catalyst particles comprise Pt and/or Ru catalyst particles.

27. (Withdrawn) The electrode of claim 23, wherein the metallic catalyst particles have a dispersion in the range of 0.3-5 mg/cm² on internal and external walls of the branched carbon nanotubes.

28. (Withdrawn) The electrode of claim 23, wherein the metallic catalyst particles are selected to act both as a catalyst for carbon nanotube growth and as a fuel cell catalyst.

29. (Withdrawn) A fuel cell using at least one electrode in accordance with claim 23.

30. (Withdrawn) A fuel cell using at least one electrode in accordance with claim 27.